

**METHOD OF PRODUCING NITRIDE-BASED HETEROSTRUCTURE  
DEVICES**

**ABSTRACT OF THE DISCLOSURE**

5       A method of producing nitride based heterostructure devices by using a  
quaternary layer comprised of AlInGaN. The quaternary layer may be used in  
conjunction with a ternary layer in varying thicknesses and compositions that  
independently adjust polarization charges and band offsets for device structure  
optimization by using strain compensation profiles. The profiles can be adjusted  
10   by altering profiles of molar fractions of In and Al.